South-Eastern Finland
University of Applied Sciences

DEGREE CERTIFICATE

No. D1393

South-Eastern Finland University of Applied Sciences
has awarded

Thanh Tu Nguyen
220197-277Y

the degree of

BACHELOR OF ENGINEERING

Insinööri (AMK)

Degree Programme in Information Technology

The extent of the degree 240 credits

Courses and grades are given on the attached
certificate of completed studies

Mikkeli 24 June 2021

Heikki Saastamoinen
President

Kaakkois-Suomen ammattikorkeakoulu
South-Eastern Finland University of Applied Sciences

Student	Thanh Tu Nguyen		
Personal ID code	220197-277Y	Credits	**240 cr**
Student number	D1393	Completed	**240 cr**
Degree	Bachelor of Engineering	With average	**2,69**
Degree title	Insinööri (AMK)		
Programme	Degree Programme in Information Technology		
Language of instruction	English		

Studies	Cr	Grade	Date
CORE COMPETENCE	**210 cr**		
General skills	**15 cr**		
Professional ICT skills	5 cr	H	16.12.2015
Finnish 1, A1	5 cr	3	31.01.2016
Basic engineering physics and chemistry	5 cr	4	02.05.2016
Terminology and communication skills	**20 cr**		
Professional growth	5 cr	H	11.05.2021
English business communication	5 cr	2	02.06.2016
Finnish 2, A1	5 cr	1	31.05.2016
Calculus	5 cr	2	02.05.2016
Computer software	**15 cr**		
Operating systems	5 cr	3	03.05.2017
Internet application development	5 cr	4	17.12.2015
Introduction to telecommunications	5 cr	1	09.05.2016
Computer hardware	**15 cr**		
Discrete mathematics	5 cr	2	17.12.2015
PC Technology	5 cr	3	17.12.2015
Electronics and measurement	5 cr	3	11.01.2016
Local area networks	**20 cr**		
Digital electronics	5 cr	3	07.01.2019
Introduction to networks	5 cr	3	17.11.2017
Routing and switching essentials	5 cr	3	07.01.2021
Basics of business operations	5 cr	3	02.01.2017
Programming	**15 cr**		
Object-oriented programming	5 cr	2	15.12.2016
Databases	5 cr	3	05.05.2017
Software engineering	5 cr	5	05.05.2017
Wide area networks	**20 cr**		
Scaling networks	5 cr	4	10.03.2021
Matrices and graphs	5 cr	2	24.04.2017
Mobile and wireless networks	5 cr	2	11.05.2017
Connecting networks	5 cr	4	06.05.2021
Server environment	**15 cr**		
Introduction to enterprise server systems	5 cr	1	18.12.2017
Server operating systems	5 cr	4	18.12.2018
Introduction to network security	5 cr *k1*	H	26.05.2021

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Secure server systems	**15 cr**			
Advanced information security	5 cr		3	03.06.2019
Advanced enterprise server environment	5 cr		1	18.04.2018
Advanced server development project	5 cr		1	30.04.2019
Research and project management	**15 cr**			
Project management skills	5 cr		3	15.05.2019
Introduction to bachelor's thesis	5 cr		H	28.05.2021
Probability and statistics in server environment	5 cr		1	20.04.2018
Practical training	**30 cr**			
Practical training, core competence	15 cr		H	01.10.2018
Practical training, additional competence	15 cr		H	10.11.2020
Bachelor's thesis	**15 cr**			
Bachelor’s thesis: Brainstorming and planning	5 cr		3	01.06.2021
Bachelor’s thesis: Implementation	5 cr		3	01.06.2021
Bachelor’s thesis: Reporting, assessment and presentation	5 cr		3	09.06.2021
SUPPLEMENTARY COMPETENCE	**30 cr**			
Advanced programming	**15 cr**			
Current trends in IT	5 cr		4	25.04.2018
Mobile programming	5 cr		2	19.12.2017
Web programming	5 cr		3	18.12.2017
Optional studies	**15 cr**			
Unity Game Developer 2D	5 cr	*s1*	H	03.05.2021
Unity Game Developer 3D	5 cr	*s2*	H	03.05.2021
Future Hospital Jam	2 cr		H	04.04.2018
Intermediate C# programming	3 cr	*s3*	H	26.05.2021

The student has gained such oral and written skills in the obligatory English language required by the degree programme that are necessary for practising the profession and for further professional development (Decree 1129/2014, 7 §).
The student has received his/her school education abroad, and has therefore been exempted from the language requirements on the Finnish and Swedish language stipulated by the Decree 1129/2014, 7 §, 1.
The student has completed the maturity test included in the final thesis in the English language.

The degree is based on the Act on polytechnic studies (932/2014), Decree (1129/2014) and it gives a qualification for a position or post requiring a degree of higher education.

Student exchange
International training 04.06.2018—31.08.2018 ML Components GmbH, Germany

Compensated studies
k1 = Introduction to cybersecurity, 19.5.2021, Cisco online training courses

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Inclusions

s1 = Unity Game Developer 2D, 15.3.2021, Online course by Udemy
s2 = Unity Game Developer 3D, 30.4.2021, Online course by Udemy
s3 = Intermediate C# programming, 20.5.2021, Online course by Udemy

Thesis: 2D GAME DEVELOPMENT IN C# WITH UNITY
Assessment: 3
Assessment Date: 4.6.2021

Mikkeli 24.6.2021

Heikki Saastamoinen
President

Verification of authenticity of the certificate

Electronically signed degree certificates meet the highest EU requirements. To see the signature, use the "Signature" function in the PDF file. You can also check the signature at https://www.xamk.fi/en/xamk2/authenticy.

Kaakkois-Suomen ammattikorkeakoulu

TUTKINTOTODISTUS

No. D1393

Thanh Tu Nguyen
220197-277Y

on suorittanut Kaakkois-Suomen ammattikorkeakoulussa
liitteessä mainituin arvioinnein

TEKNIIKAN AMMATTIKORKEAKOULUTUTKINNON

ja on oikeutettu käyttämään tutkintonimikettä

Insinööri (AMK)

Degree Programme in Information Technology

Tutkinnon laajuus 240 opintopistettä

Mikkelissä 24. kesäkuuta 2021

Heikki Saastamoinen
rehtori

Kaakkois-Suomen ammattikorkeakoulu
South-Eastern Finland University of Applied Sciences

Opiskelija	Thanh Tu Nguyen		
Henkilötunnus	220197-277Y	Laajuus	**240 op**
Opiskelijanumero	D1393	Suoritettu	**240 op**
Tutkinto	Tekniikan ammattikorkeakoulututkinto	Keskiarvo	**2,69**
Tutkintonimike	Insinööri (AMK)		
Koulutus	Degree Programme in Information Technology		
Opetuskieli	Englanti		

Opintosuoritukset	**Op**		**As**	**Pvm**
YDINOSAAMINEN	**210 op**			
Yleiset taidot	**15 op**			
Tietojenkäsittely organisaatioissa	5 op		H	16.12.2015
Suomi 1, A1	5 op		3	31.01.2016
Insinöörin perusfysiikka ja -kemia	5 op		4	02.05.2016
Terminologia ja viestintätaidot	**20 op**			
Ammatillinen kasvu	5 op		H	11.05.2021
Englannin yritysviestintä	5 op		2	02.06.2016
Suomi 2, A1	5 op		1	31.05.2016
Differentiaali- ja integraalilaskenta	5 op		2	02.05.2016
Tietokoneohjelmistot	**15 op**			
Käyttöjärjestelmät	5 op		3	03.05.2017
Internet sovellusten kehittäminen	5 op		4	17.12.2015
Johdatus tietoliikennetekniikkaan	5 op		1	09.05.2016
Tietokonelaitteistot	**15 op**			
Diskreetti matematiikka	5 op		2	17.12.2015
PC-tekniikka	5 op		3	17.12.2015
Elektroniikka ja mittaukset	5 op		3	11.01.2016
Lähiverkot	**20 op**			
Digitaalielektroniikka	5 op		3	07.01.2019
Johdanto lähiverkkoihin	5 op		3	17.11.2017
Kytkimet ja reitittimet	5 op		3	07.01.2021
Yritystoiminnan perusteet	5 op		3	02.01.2017
Ohjelmointi	**15 op**			
Olio-ohjelmointi	5 op		2	15.12.2016
Tietokannat	5 op		3	05.05.2017
Ohjelmistotuotanto	5 op		5	05.05.2017
Laaja-alueverkot	**20 op**			
Skaalautuvat verkot	5 op		4	10.03.2021
Matriisit ja graafit	5 op		2	24.04.2017
Matkapuhelin ja langattomat verkot	5 op		2	11.05.2017
Laajaverkot	5 op		4	06.05.2021
Palvelinympäristöt	**15 op**			
Johdanto yrityksen palvelinympäristöihin	5 op		1	18.12.2017
Palvelimen käyttöjärjestelmät	5 op		4	18.12.2018
Johdanto verkkoturvallisuuteen	5 op	*k1*	H	26.05.2021

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Suojatut palvelinjärjestelmät	**15 op**			
Edistynyt tietoturva	5 op		3	03.06.2019
Edistyneet yrityksen palvelinympäristöt	5 op		1	18.04.2018
Advanced server development project	5 op		1	30.04.2019
Tutkimus- ja projektiosaaminen	**15 op**			
Projektiosaaminen	5 op		3	15.05.2019
Johdatus opinnäytetyöhön	5 op		H	28.05.2021
Todennäköisyys- ja tilastotiede palvelinympäristössä	5 op		1	20.04.2018
Harjoittelu	**30 op**			
Harjoittelu, ydinosaaminen	15 op		H	01.10.2018
Harjoittelu, täydentävä osaaminen	15 op		H	10.11.2020
Opinnäytetyö	**15 op**			
Opinnäytetyön ideointi ja suunnittelu	5 op		3	01.06.2021
Opinnäytetyön toteutus	5 op		3	01.06.2021
Opinnäytetyön raportointi, arviointi ja esittely	5 op		3	09.06.2021
TÄYDENTÄVÄ OSAAMINEN	**30 op**			
Edistynyt ohjelmointi	**15 op**			
Current trends in IT	5 op		4	25.04.2018
Mobiiliohjelmointi	5 op		2	19.12.2017
Web programming	5 op		3	18.12.2017
Vapaasti valittavat opinnot	**15 op**			
Unity Game Developer 2D	5 op	*s1*	H	03.05.2021
Unity Game Developer 3D	5 op	*s2*	H	03.05.2021
Future Hospital Jam	2 op		H	04.04.2018
Intermediate C# programming	3 op	*s3*	H	26.05.2021

Opiskelija on saavuttanut englannin kielessä sellaisen suullisen ja kirjallisen taidon, joka ammatin harjoittamisen ja ammatillisen kehityksen kannalta on tarpeellinen (1129/2014, 7 §).
Opiskelija on saanut koulusivistyksensä ulkomailla, suorittanut opinnäytetyöhön sisältyvän kypsyysnäytteen englannin kielellä.
Opiskelija on koulusivistyskielensä vuoksi vapautettu asetuksen (1129/2014, 7 §, 1 mom.) mukaisista suomen ja ruotsin kieltä koskevista kielitaitovaatimuksista.

Tutkinto perustuu ammattikorkeakouluista annettuun lakiin (932/2014) ja asetukseen (1129/2014) ja se antaa pätevyyden korkeakoulututkintoa edellyttävään virkaan tai tehtävään.

Opiskelijavaihto
Kansainvälinen harjoittelu 04.06.2018—31.08.2018 ML Components GmbH, Saksa

Korvaavat suoritukset
k1 = Introduction to cybersecurity, 19.5.2021, Cisco online training courses

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Sisältyvyydet

s1 = Unity Game Developer 2D, 15.3.2021, Online course by Udemy
s2 = Unity Game Developer 3D, 30.4.2021, Online course by Udemy
s3 = Intermediate C# programming, 20.5.2021, Online course by Udemy

Opinnäytetyö: 2D GAME DEVELOPMENT IN C# WITH UNITY
Arviointi: 3
Arviointipäivämäärä: 4.6.2021

Mikkelissä 24.6.2021

Heikki Saastamoinen
rehtori

Todistuksen aitouden varmistaminen

Sähköisesti allekirjoitetut tutkintotodistukset täyttävät EU-regulaatiossa asetetut tiukimman ja luotettavimman tason vaatimukset. Allekirjoitus näkyy PDF-tiedoston Signature-toiminnon kautta. Lisäksi allekirjoituksen voi tarkistaa osoitteessa: https://www.xamk.fi/xamk/varmennus.

DIPLOMA SUPPLEMENT

The purpose of the Diploma Supplement is to provide sufficient independent data to improve the international 'transparency' and fair academic and professional recognition of qualifications (diplomas, degrees, certificates etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It is free from any value judgements, equivalence statements or suggestions about recognition. This Diploma Supplement model was developed by the European Commission, Council of Europe and UNESCO.

1 INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1	Family name(s)	*Nguyen*
1.2	Given name(s)	*Thanh Tu*
1.3	Date of birth (day.month.year)	*22.1.1997*
1.4	Student identification number or code (if available)	*OID: 1.2.246.562.24.50060631168* *D1393*

2 INFORMATION IDENTIFYING THE QUALIFICATION

2.1	Name of qualification and (if applicable) title conferred (in original language)	*Tekniikan ammattikorkeakoulututkinto, Insinööri (AMK), Bachelor of Engineering*
2.2	Main field(s) of study for the qualification	*Degree Programme in Information Technology*
2.3	Name and status of awarding institution (in original language)	*Kaakkois-Suomen ammattikorkeakoulu (South-Eastern Finland University of Applied Sciences)* *State recognised university of applied sciences* *The quality assurance system of the university of applied sciences has passed the audit conducted by the Finnish Education Evaluation Centre (FINEEC), www.karvi.fi.*
2.4	Name and status of institution (if different from 2.3) administering studies (in original language)	*Not applicable*
2.5	Language(s) of instruction/examination	*English*

3 INFORMATION ON THE LEVEL OF THE QUALIFICATION

3.1	Level of qualification	*First-cycle higher education degree (bachelor level). The degree is on level 6 in the National Framework for Qualifications and Other Competence Modules (FiNQF) and the European Qualifications Framework.*
3.2	Official duration of programme in credits and years	*240 credits (4 year(s) of full time study)* *Finnish credits are fully compatible with the ECTS.*
3.3	Access requirements	*See 8. There is a numerus clausus, i.e. restricted entry, to all fields of study.*

4 INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1	Mode of study	*Full-time*
4.2	Programme learning outcomes	*See 8 and Certificate of Completed Studies*
4.3	Programme details (e.g. modules or units studied), and individual grades/marks/credits obtained	*See Certificate of Completed Studies*
4.4	Grading scheme and, if available, grade distribution guidance	*5 = Excellent* *4 = Good* *3 = Good* *2 = Satisfactory* *1 = Satisfactory* *H = Accepted*
4.5	Overall classification of the qualification (in original language)	*Not applicable*

5 INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1	Access to further study	*Eligible for second-cycle higher education studies*
5.2	Access to a regulated profession (if applicable)	*The degree falls under the Article 11 of the Directive 2005/36/EC of the European Parliament and of the Council on the recognition of professional qualifications, level d.*

6 ADDITIONAL INFORMATION

6.1	Additional information	*Kymenlaakson ammattikorkeakoulu and Mikkelin ammattikorkeakoulu have merged into Kaakkois-Suomen ammattikorkeakoulu as of 01.01.2017. Kymenlaakson ammattikorkeakoulu and Mikkelin ammattikorkeakoulu were state recognised universities of applied sciences.*
6.2	Further information sources	*www.xamk.fi, South-Eastern Finland University of Applied Sciences* *www.minedu.fi, Ministry of Education and Culture* *www.oph.fi/recognition,* *www.oph.fi/qualificationsframework* *- The Finnish National Agency for Education, the ENIC: European Network of Information Centres in the European Region, and the NARIC: National Academic Recognition Information Centres in the European Union), and the National Coordination Point for the European Qualifications Framework (EQF).* *www.karvi.fi,The Finnish Education Evaluation Centre (FINEEC)*

7 CERTIFICATION OF THE SUPPLEMENT

7.1	Date	*Mikkeli, 24.6.2021*
7.2	Signature	*Heikki Saastamoinen*
7.3	Capacity	*President*
7.4	Official stamp or seal	

8 INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

The description of the higher education system has been prepared by the Finnish National Agency for Education.

The Finnish education system consists of pre-primary and basic education, general and vocational education and higher education. The compulsory schooling consists of one-year pre-primary education for 6-year-olds and nine-year basic education for children aged 7-16.

Post-compulsory education consists of general and vocational upper secondary education that lead to the national Matriculation Examination (*ylioppilastutkinto/studentexamen*), vocational upper secondary qualification (*ammatillinen perustutkinto/yrkesinriktad grundexamen*), further vocational qualification (*ammattitutkinto, yrkesexamen*) and specialist vocational qualification (*erikoisammattitutkinto/specialyrkesexamen*).

Higher education system in Finland

The Finnish higher education system comprises universities (*yliopisto/universitet*) and universities of applied sciences (*ammattikorkeakoulu, AMK/yrkeshögskola, YH*). The universities engage both in education and research and have the right to award doctorates. The universities of applied sciences are multi-field institutions of professional higher education. Universities of applied sciences engage in applied research and development.

First and second cycle higher education studies are measured in credits (*opintopiste/studiepoäng*). Study courses are quantified according to the work load required. One year of full-time study is equivalent to 1600 hours of student work on average and is defined as 60 credits. The credit system complies with the European Credit Transfer and Accumulation System (ECTS).

Higher education qualifications in Finland are referenced at levels 6, 7 and 8 both in the National Qualifications Framework as well as in the European Qualifications Framework.

University degrees

The Government Decree on University Degrees and Specialisation Studies (794/2004 including amendments) defines the objectives, extent and overall structure of degrees. The universities decide on the detailed contents and structure of the degrees they award. They also decide on their curricula and forms of instruction.

First cycle university degree

The first cycle university degree consists of at least 180 credits (three years of full-time study). The degree is called *kandidaatti/kandidat* in all fields of study except for Law (*oikeusnotaari/rättsnotarie*) and Pharmacy (*farmaseutti/farmaceut*). The determined English translation for all of these degrees is Bachelor's degree, the most common degree titles being Bachelor of Arts and Bachelor of Science.

Studies leading to the degree provide the student with: (1) knowledge of the fundamentals of the major and minor subjects or corresponding study entities or studies included in the degree programme and the prerequisites for following developments in the field, (2) knowledge and skills needed for scientific thinking and the use of scientific methods or knowledge and skills needed for artistic work, (3) knowledge and skills needed for studies leading to a higher university degree and for life-long learning, (4) a capacity for applying the acquired knowledge and skills to work and in international co-operation, and (5) adequate language and communication skills for working in one's own field and for international work and co-operation.

Studies leading to the degree may include: basic and intermediate studies; language and communication studies, interdisciplinary programmes, and other studies and work practice for professional development. The degree includes a Bachelor's thesis (6 – 10 credits).

Second cycle university degree

The second cycle university degree consists of at least 120 credits (two years of full-time study). The degree is usually called *maisteri/magister*. Other second cycle degree titles are *diplomi-insinöörin tutkinto/diplomingenjörexamen* (Technology), *proviisorin tutkinto /provisorexamen* (Pharmacy), *arkkitehdin tutkinto/arkitektexamen* (Architecture) and *maisema-arkkitehdin tutkinto/ landskapsarkitektexamen* (Landscape Architecture). The determined English translation for all these degrees is Master's degree, the most common degree titles being Master of Arts and Master of Science. The second cycle university degree title in the fields of Medicine, Veterinary Medicine and Dentistry is *lisensiaatti/licentiat*, the English title being Licentiate. The admission requirement for the second cycle university degree is a first cycle degree.

In the fields of Medicine and Dentistry the university may arrange the education leading to the second cycle university degree without including a first cycle university degree in the education. In Medicine, the degree consists of 360 credits (six years of full-time study) and in Dentistry the degree consists of 330 credits (five and a half years of full-time study).

Studies leading to the second cycle university degree provide the student with: (1) good overall knowledge of the major subject or a corresponding entity and conversance with the fundamentals of the minor subject or good knowledge of the advanced studies included in the degree programme; (2) knowledge and skills needed to apply scientific knowledge and scientific methods or knowledge and skills needed for independent and demanding artistic work; (3) knowledge and skills needed for independently operating as an expert and developer of the field and for international co-operation; (4) knowledge and skills needed for scientific or artistic postgraduate education and for life-long learning; and (5) good language and communication skills for working in one's own field and for international work and co-operation.

The studies leading to the second cycle university degree may include: basic and intermediate studies and advanced studies, language and communication studies; interdisciplinary studies, other studies, and internship improving expertise. The degree includes a Master's thesis (20 – 40 credits).

Doctoral degrees

The aim of doctoral studies is to provide student with an in-depth knowledge of their field of research and capabilities to produce novel scientific knowledge independently.

The degree of *lisensiaatti/licentiat* (Licentiate) may be taken before the Doctor's degree and in general it takes two years of full-time study to complete.

The Doctor's degree takes approximately four years to complete after a second cycle degree and two years when completed after a Licentiate's degree. A student who has been admitted to studies leading to Doctor's degree must complete a given amount of studies, show independent and critical thinking in their field of research and write a Doctor's dissertation and defend it in public.

University of applied sciences degrees

The universities of applied sciences Act (932/2014 including amendments) defines the objectives, extent and overall structure of universities of applied sciences degrees. The universities of applied sciences decide on the detailed contents and structure of the degrees they award. They also decide on their curricula and forms of instruction.

First cycle university of applied sciences degrees

The first cycle university of applied sciences degree consists of 180, 210, 240 or 270 credits (three to four and a half years of full-time study) depending on the field of study. The first cycle university of applied sciences degree is called *ammattikorkeakoulututkinto/yrkeshögskoleexamen*. The determined English translation for the degree is Bachelor's degree. The degree titles indicate the field of study, e.g. Bachelor of Engineering and Bachelor of Health Care.

Studies leading to the degree provide the student with: (1) broad overall knowledge and skills with relevant theoretical background for working as expert of the field, (2) knowledge and skills needed for following and advancing developments in the field, (3) knowledge and skills needed for professional development and life-long learning, and (4) adequate language and communication skills for working in one's own field and for international work and co-operation.

The first cycle university of applied sciences degree comprises basic and professional studies, elective studies, a practical training period, and a final project.

The second cycle university of applied sciences degrees

The second cycle university of applied sciences degree consists of 60 or 90 credits (a year or a year and a half of full-time study). The Master of Police Services degree consists of 120 credits. The degree is called *ylempi ammattikorkeakoulututkinto/högre yrkeshögskoleexamen*. The determined English translation for the degree is Master's degree. The degree titles indicate the field of study, e.g. Master of Culture and Arts or Master of Business Administration.

Studies leading to the degree provide the student with: (1) broad and advanced knowledge and skills for developing the professional field as well as the theoretical skills for working in demanding expert and leadership positions in the field, (2) profound understanding of the field, its relation to working life and society at large as well as the knowledge and skills needed for following and analysing both theoretical and professional developments in the field, (3) capacity for life-long learning and continuous development of one's own expertise, and (4) good language and communication skills for working in one's own field and for international work and co-operation.

The second cycle university of applied sciences degree comprises advanced professional studies, elective studies, and a final project.

Professional specialisation programmes

Universities and universities of applied sciences offer professional specialisation programmes for those who have completed a degree and have already entered working life. Professional specialisation programmes aim to promote professional development and specialisation by means of providing education based on the research.

Provisions on the joint objectives and minimum scope of professional specialisation programmes are issued by government decree. The minimum scope of professional specialisation studies is 30 credits.